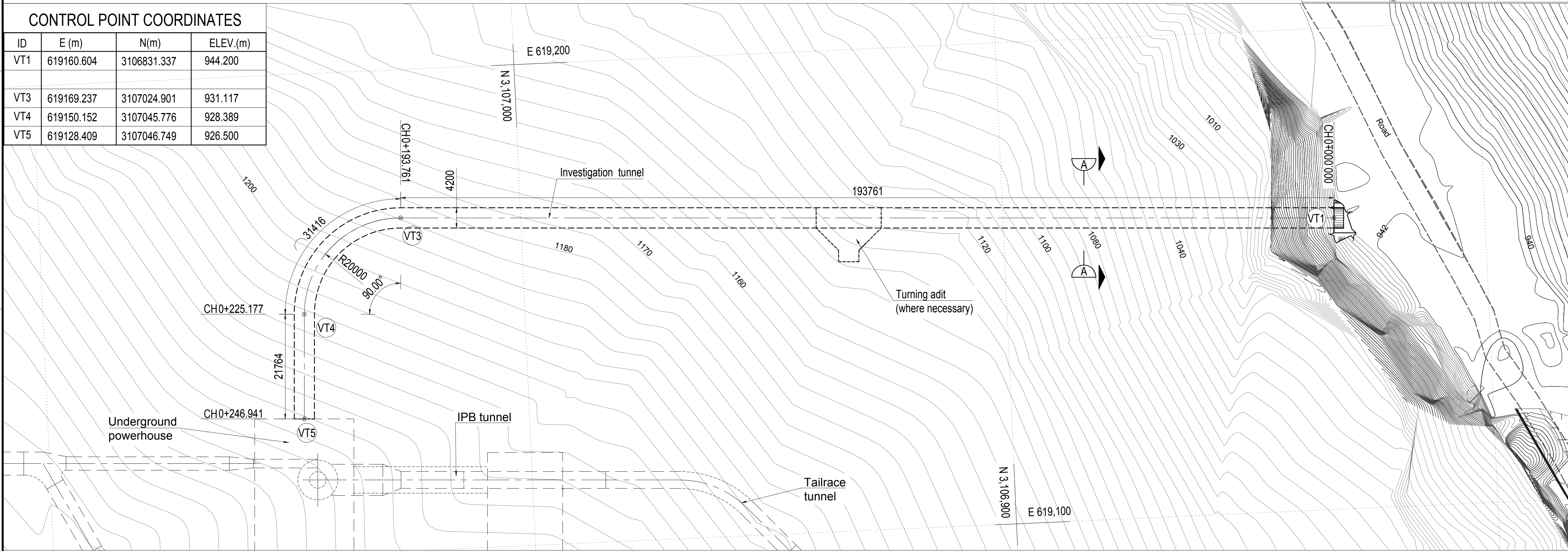


PLAN OF INVESTIGATION TUNNEL FOR P/H

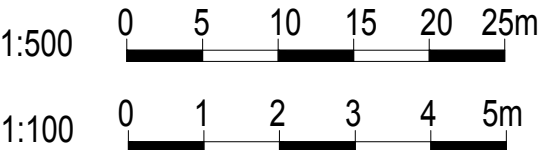
1:500

CONTROL POINT COORDINATES			
ID	E (m)	N(m)	ELEV.(m)
VT1	619160.604	3106831.337	944.200
VT3	619169.237	3107024.901	931.117
VT4	619150.152	3107045.776	928.389
VT5	619128.409	3107046.749	926.500



- NOTE
- This set of drawings are for the layout drawings of investigation tunnel for the powerhouse.
 - All dimensions are in millimeters, and coordinates, chainages & elevations are in meters.
 - The end position of the investigation tunnel may be adjusted according to the final position and section size of the powerhouse.
 - The location of the turning adit may be adjusted according to the actual rock conditions.

SCALE:



REFERENCE DRAWINGS

UT1-C-385-CVL-DG-65002-01-02 EXCAVATION AND INITIAL SUPPORT DRAWINGS OF INVESTIGATION TUNNEL FOR POWERHOUSE

SYMBOL AND LEGEND

FOR REVIEW

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REV. NO.	DATE	DESCRIPTION	DRAWN	CHKD.	APPD.
B	10 Oct., 2021	FOR REVIEW	ZHANG JI QIANG	LIU BO	LI WEI GONG
A	25 MAY., 2021	FOR REVIEW	ZHANG JI QIANG	LIU BO	LI WEI GONG

PROJECT TITLE
Upper Trishuli-1 HEP (216MW)

OWNER
NWEDC
NORWEL WATER AND ENERGY DEVELOPMENT CO., LTD.

OWNER'S ENGINEER
TRACTEBEL
ENGIE
jade CONSULT

CONTRACTOR
DOOSAN
Doosan Heavy Industries & Construction

DRAWING TITLE
LAYOUT DRAWINGS OF INVESTIGATION TUNNEL FOR POWERHOUSE (1/2)

INDEX	DRAWING NUMBER	SHEET NO.	REV. NO.
A	UT1-C-385-CVL-DG-65001-01	1 OF 2	B

DESIGN PARAMETERS OF INVESTIGATION TUNNEL FOR POWERHOUSE

Rock mass quality	40<Q	10<Q<40	7<Q<10	4<Q<7	1<Q<4	Q<1
Support type	I	II	IIIa	IIIb	IV	V
Inner dimension(m)	W=4.2m, H=5.8m					
Shotcrete	No need	Plastic fiber shotcrete, f' c=21MPa, T=50mm	Plastic fiber shotcrete, f' c=21MPa, T=80mm	Plastic fiber shotcrete, f' c=21MPa, T=100mm	Plastic fiber shotcrete, f' c=21MPa, T=100mm	Plastic fiber shotcrete, f' c=21MPa, T=160mm
Rock dowel	D25, L=3m (where necessary)	D25, L=3m (where necessary)	D25, L=3m, @2m×2m (alternately)	D25, L=3m, @2m×2m (alternately)	D25, L=3m, @1.5m×1.5m (alternately)	D25, L=3m, @1m×1m (alternately)
weep hole	Weep hole, Φ50mm, 0.2m into rock(where necessary)					
Steel support				Steel support, MB150, or lattice girder (where necessary)	Steel support, MB150@1m (or lattice girder, @1m)	
Supplementary support					Forepoling grouted dowel, D25mm, @400mm, L=6m (where necessary)	

OCCURRENCE OF JOINTS

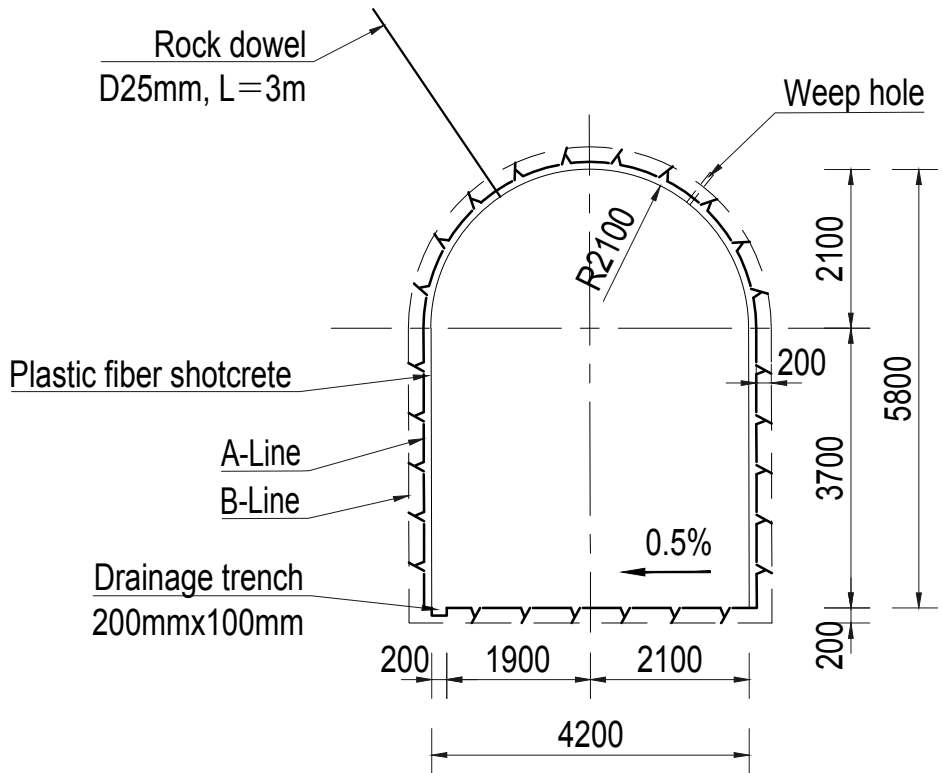
Joint No.			
J1(foliation)	340°	20°	N3° E
J2	235°	70°	
J3	25°	60°	

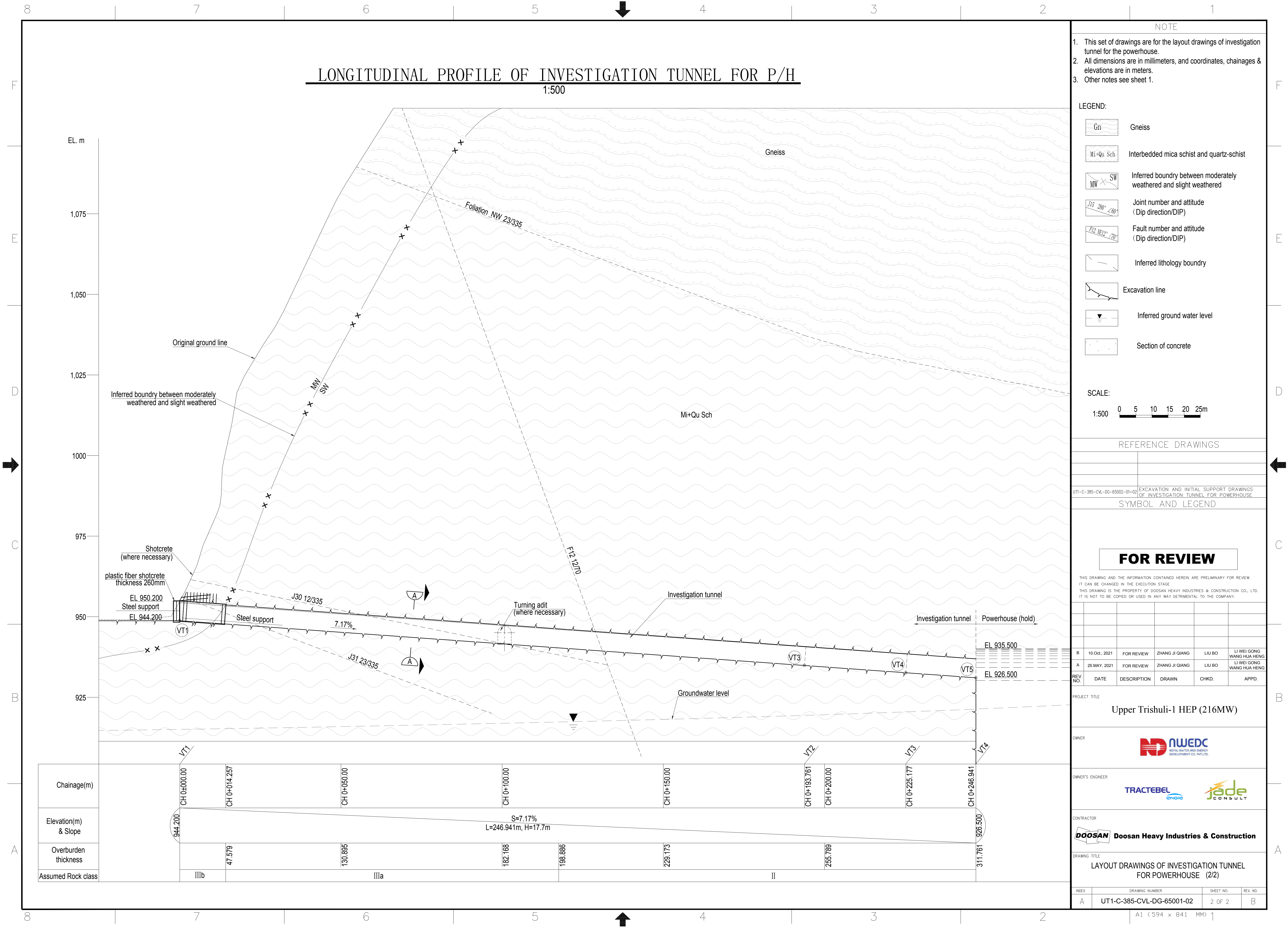
MECHANICAL PARAMETER OF JOINTS

Joint type	JRC	JCS, (MPa)	C, (MPa)	Φ, (°)
foliation	6	70	0.20	35.0
lithoclasts cementted (J2, J3)	8	50	0.15	28.8

TYPICAL SECTION (SECTION A-A)

1:100





- NOTE
1. This set of drawings are for the layout drawings of investigation tunnel for the powerhouse.
 2. All dimensions are in millimeters, and coordinates, chainages & elevations are in meters.
 3. Other notes see sheet 1.

LEGEND:

	Gneiss
	Interbedded mica schist and quartz-schist
	Inferred boundary between moderately weathered and slight weathered
	Joint number and attitude (Dip direction/DIP)
	Fault number and attitude (Dip direction/DIP)
	Inferred lithology boundary
	Excavation line
	Inferred ground water level
	Section of concrete

SCALE:

1:500

0 5 10 15 20 25m

REFERENCE DRAWINGS	
UT1-C-385-CVL-DG-65002-01-02	EXCAVATION AND INITIAL SUPPORT DRAWINGS OF INVESTIGATION TUNNEL FOR POWERHOUSE

SYMBOL AND LEGEND

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PROJECT TITLE

Upper Trishuli-1 HEP (216MW)

OWNER

NWEDC
NORTEL WATER AND ENERGY DEVELOPMENT CO., LTD.

OWNER'S ENGINEER

TRACTEBEL
 jade CONSULT

CONTRACTOR

DOOSAN Heavy Industries & Construction

DRAWING TITLE

LAYOUT DRAWINGS OF INVESTIGATION TUNNEL FOR POWERHOUSE (2/2)

INDEX	DRAWING NUMBER	SHEET NO.	REV. NO.
A	UT1-C-385-CVL-DG-65001-02	2 OF 2	B